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A New Species of the Genus *Gnorimosphaeroma* (Crustacea, Isopoda) from a freshwater stream of Izu Peninsula, middle Japan*

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伊豆半島の淡水域で発見されたイソコツブムシ属の1新種

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静岡県伊豆半島南伊豆町伊浜の淡水域から発見されたイソコツブムシ属の1種を新種 *Gnorimosphaeroma izuense* (和名:イズコツブムシ：新称）として記載した。従来，本属は海産の種を除くと主に日本海側の淡水域をはじめ，一部北海道の太平洋側，九州の東シナ海側，小笠原諸島から生息が確認されているが，本州太平洋側の淡水からは初めての出現である。本種は *G.hoestlandti* と最も類似するが，(1) 第1胸肢長節後縁の剛毛数が少ないこと，(2) 第1触角の鞭節数が少ないこと，(3) 第7胸肢腕節後縁の剛毛数が少ないこと，(4) 第1胸肢腕節と前節に2叉した剛毛を欠くことなどによって区別される。

本種はまた，小笠原諸島母島から知られている *G.boninense* とも類似するが，(1) オス第1胸肢長節後縁の剛毛数が少ないこと，(2) 第1触角の鞭節数が少ないこと，(3) 腹肢の剛毛が少ないこと，(4) 第2胸肢前節の基部ではなく全体に内側が膨らんでいること，(5)第7胸肢腕節に多くの剛毛を持つことなどの点で区別される。

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Key words：Isopoda, taxonomy, *Gnorimosphaeroma*, Sphaeromatidae, new species, freshwater
キーワード：等脚目，分類学，イソコツブムシ属，イズコツブムシ，新種，淡水

During a survey of a small freshwater stream of Izu Peninsula, Mr. Takeshi Horiguchi, ECOSYS Co., Ltd. happened to find some specimens of isopod crustaceans. They were handed over to Mr. Gyo Yoshinari, IDEA Consultants, Inc., for identification and then they were sent to me for identification again. As the result of the close examinations of mine, they appeared to represent a new species of the genus *Gnorimosphaeroma*. Hitherto, twenty-two species from all over the world nineteen speace of this genus have been recorded in Japan, but freshwater species have been recorded mainly from the areas facing the Sea of Japan. It is the first record from freshwater habitat of pacific side of Honshu and partly Pacific side of Hokkaido, East China sea side of Kyushu and Bonin Island. The holotype and a part of paratypes will be deposited at the Toyama Science Museum. Several specimens of type series will be deposited at National Science Museum, Tokyo and Osaka Museum of Natural History.

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Gnorimosphaeroma izuense n.sp.

(Japanese name: Izu-kotsubumushi, new)

(Figs 1-2)

Materials examined:2♂♂ (1♂holotype, 4.1 mm in body length and 1♂ paratypes, 4.0 mm in body length and 6 ♀♀(1♀ allotype, 3.8 mm in body length and 5♀♀ paratypes 2.1 - 3.3 mm in body length), Ihama, Izu-cho, Shizuoka Pref.(34°42'9"N 138°45'6"E) alt.210m, coll. Tuyoshi Horiguchi1, 5, Jan. 2006. Type series is deposited as follows: Holotype(TOYA Cr-13247), allotype (TOYA Cr-13248) and 4 paratypes (TOYA Cr-13249～13252) are at the Toyama Science Museum, 2 paratypes (OMNH Ar-7443～7444) at the Osaka Museum of Natural History and 2 paratypes (NSMT Cr-16862) at the National Science Museum, Tokyo.

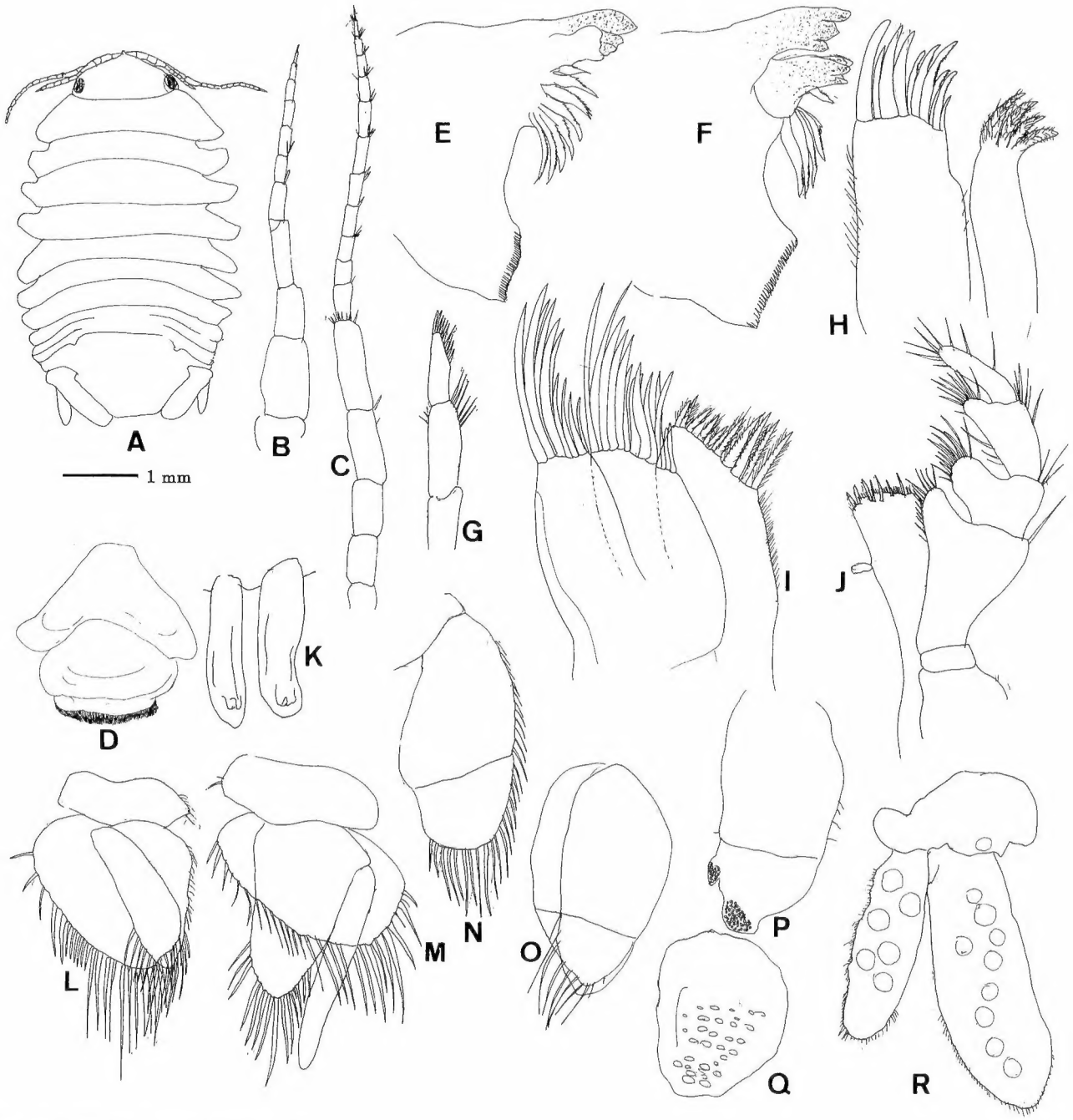

Fig.1 ***Gnorimosphaeroma izuense*** **n.sp.**
A: Dorsal view; B: Antennule; C: Antenna; D: Clypeus and labrun; E: Right mandible; F: Left mandible; G: Palp of left mandible; H: Maxillula; I: Maxilla; J: Maxilliped; K: Penes; L-O: Pleopods 1-4; P: Endopod of pleoppod 5 ; Q: Exopod the same R: Uropod (All: holotype male).

Description of male holotype : Body ovate 1.6 times as longs as wide. Color blackish brown. Surface smooth, with small translucent round patterns. Coxal plates distinct on pereonal somites 2-7. Eyes mediocre in size and each eye composed of about 36-37 ommatidia. Lateral corner sub-parallel. Epistome deltoid and labrum ellptical. Anterior suture line longer than posterior one. Posterior margin of pleotelson almost straight.

Antennule (Fig. 1B) composed of 3 peduncular segments and 8 flagellar segments. Antennae (Fig. 1C) composed of 5 peduncular segments and 11 flagellar segments. Right mandible (Fig. 1E): pars incisiva 3-toothed; lacinia mobilis not chitinzed and weakly-3 headed; 8 plumose setae behind lacinia mobilis; processus molaris wide. Left mandible (Fig. 1F) :pars incisiva 3-toothed; lacinia mobilis 3-toothed; 6 plumose setae behind lacinia mobilis ; processus molaris wide. Maxillula (Fig. 1H): inner lobe with 4 plumose setae at the tip; outer lobe with 10 setae on distal margin. Maxilla (Fig. 1H): endopod with 10-11 plumose setae; inner lobe of exopod with 12-14 setae and outer lobe of the same with 10 setae tae. Maxilliped (Fig. 1 I) :endite with a coupling hook on lateral margin; and 7-8 stout setae on distal margin: palp 5-segmented, segment 1 short; segment 2 big, with a protruded inner distal area bearing more than 10-13 setae at the tip and a relatively long seta at outer distal angle; segment 3 with more than 10-12 setae on inner distal area and 3 setae at outer distal angle; segment 4 a little longer but narrower than segment 3, with 8-10 setae on inner distal area and 5-6 setae on distal half of outer margin ; segment 5 as long as, but narrower than segment 4, with 8-10 setae around the margin.

Pereopod 1 (Fig.2A): basis 2.7 times as long as wide and slightly broadening toward the tip, with a relatively long seta at inner distal angle ;ischium 2/3 as long as basis; merus less than 2/3 as long as ischium, with a seta on inner distal angle, many short setae on inner margin and a seta at outer distal angle; carpus triangular, with many seta on inner margin; propodus, 1.3 times as long as merus, with a series of short setae on inner margin and 5 setae on outer margin; dactylus bifid.

Pereopod 2 (Fig. 2B): basis oblong and 4.1 time as long as wide; ischium 75 % as long as basis, with many short setae on inner margin; merus 0.6 times as long as ischium, with 2-3 setae and many short setae on inner margin and 2 setae at outer distal margin; carpus almost as long as merus, with 6-7 setae on inner margin, 2-3 setae on outer margin and 4 setae at outer distal angle; propodus, a little longer than carpus, with convex part on inner margin bearing 4 serrated setae; dactylus bifid.

Pereopod 3 (Fig. 2D) a little longer than pereopod 2: basis rectangular, 4.3 times as long as wide; ischium 2/3 as long as basis, with many short setae on inner margin; merus almost half length of ischium, with a long seta at inner distal angle, many short setae on inner margin and 2 setae at outer distal area; carpus a little longer than merus, with 4 setae on distal half of inner margin and many short setae on basal half of inner margin; propodus, 1.2 times longer than carpus, with many short setae on inner margin; dactylus bifid.

Pereopod 4 (Fig. 2E): basis 3.7 times as long as wide, with a seta at inner distal angle and 7-8 short setae on inner margin; ischium 4/5 as long as basis, with a seta at inner distal angle; merus 55% as long as ischium, with a seta at inner distal angle, many short setae on inner margin and 2 setae at distal margin; carpus, a little shorter and narrower than merus, with a seta at inner distal angle, 3 setae on distal margin and many short setae on inner margin, propodus 1.3 times as long as carpus, with 6-9 setae on inner margin and many short setae on outer margin, dactylus bifid.

Pereopod 5 (Fig. 2F): basis 4.0 times as long as wide; ischium 5/7 as long as basis; merus 0.7 times as long as ischium, with a seta at inner distal angle and 2 setae at the outer distal angle; carpus as long as merus, with 2 setae at inner distal angle and 3 setae at outer distal angle; propodus 1.3 times as long as carpus, with 7-8 setal on both margins; dactylus bifid.

Pereopod 6 (Fig. 2G) basis 4.0 times as long as wide, with a seta at inner distal margin; ischium 0.7 times as long as basis; merus half length of ischium, with a seta at inner distal angle and a seta on outer distal angle; carpus a little longer than merus, with 5 setae on distal margin; propodus 1.2 times longer than merus, with 6 setae on inner margin; dactylus bifid.

Pereopod 7 (Fig.2H) a little longer than pereopods 6: basis 5.7 times as long as wide; ischium 75% as long as basis. merus 2/3 as long as ischium, with more than a dozen setae on distal margin; carpus as long as merus, with a dozen setae on distal margin; propodus 1.4 time longer than carpus, with 4 setae on inner margin and many short setae on outer

margin; dactylus bifid.

Penes (Fig. 1K) paired, each 3.7 times as long wide.

Pleopod 1 (Fig. 1L): basis with 2 setae on lateral margin ; endopod with 38-40 setae around the margin ; exopod with 15-16 setae around the margin.

Pleopod 2 (Fig.1M): basis short, endopod triangular, with15-16 setae around the margin, and stylus exceeds beyond the tip of endopod. exopod lanceolate, with 31-33 setae around the margin.

Pleopod 3 (Fig. 1N): exopod lanceolate, with a suture line, with about 40 setae around the margin.

Pleopod 4 (Fig . 1O): endopod lanceolate; exopod with a suture line and 9-10 plumose setae around the margin.

Pleopod 5: endopod (Fig. 1P) rounded; exopod (Fig. 1Q) with 2 bosses.

Uropod (Fig. 1R): endopod lanceolate; exopod lanceolate, 65% as long as endopod, with slightly sinuate outer margin and many short setae around the margin.

Female differs in the sexual character and not swollen carpus of pereopod 2 (Fig.2 C).

Ecology: According to Mr. Yoshinari, he observed the following animals from the same habitat: *Caridina multidentata, Geothelphusa dehaani, Ephemera japonica, Bleptus fasciatus, Ecdyonurus tobiironis, Heptagenia kyotoensis, Epiophlebia superstes, Cryptoperla japonica Protohermes grandis, Rhopalopsole* sp. and *Togoperla* sp.

Etymology: "Izu" is a name of peninsula where the type locality is located.

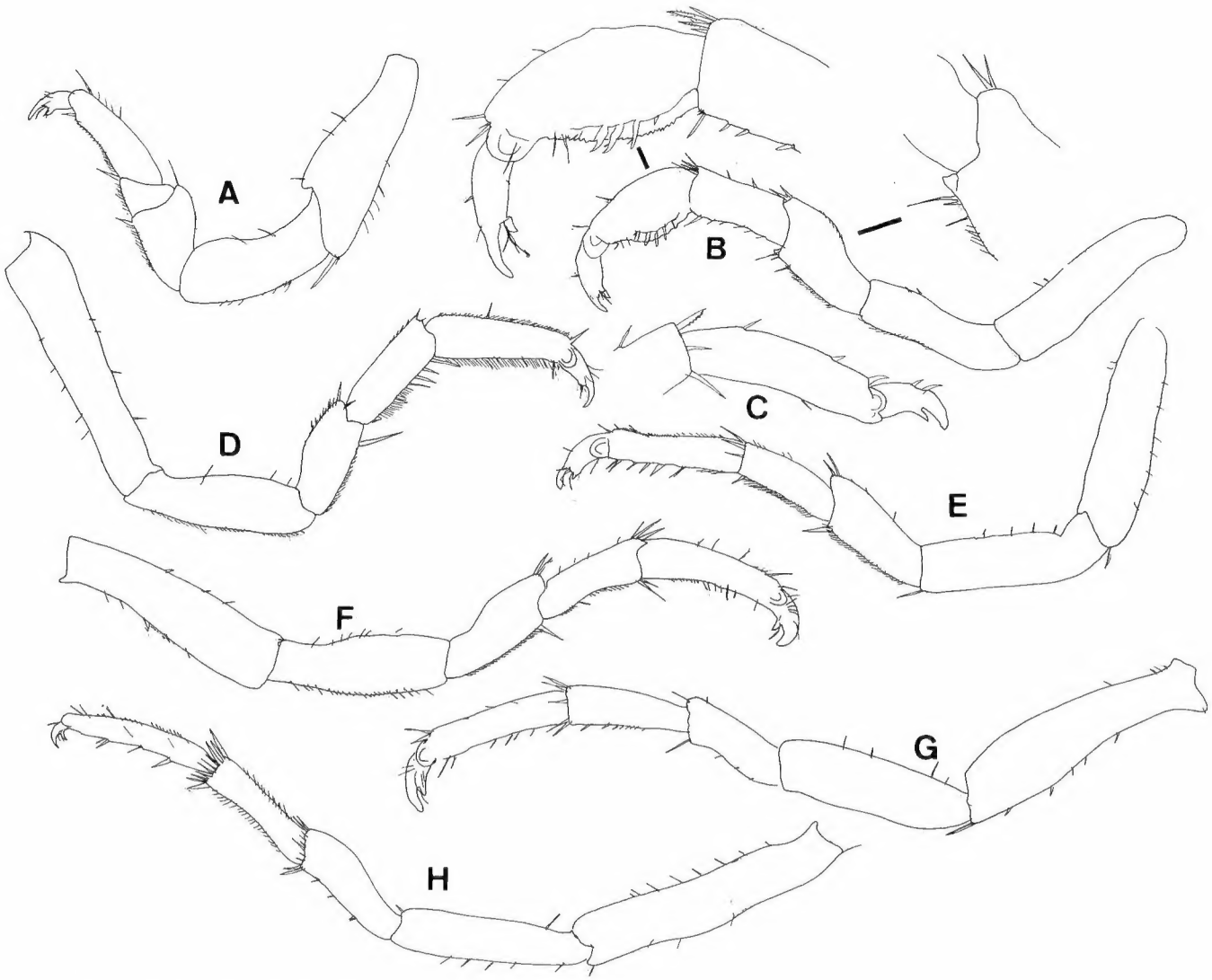

Fig.2 *Gnorimosphaeroma izuense* n.sp.
A: Peroepod 1; B: Pereopod 2 ; C: The same of female; D-H: Pereopods 3-7.(A-B, D-H:Holotype male; C:Allotype female).

Remarks: The present species is most closely allied to G*norimosphaeroma hoestlandti* but the former is separated from the latter in the following features ;(1)less numerous setae on merus of pereopod 1, (2) less numerous flagellar segments of antennule, (3) absence of bifurcated setae on inner margin of pereopod 1. (4) less numerous setae on canpus of pereopod 7. The present new species is also allied to *G.boninense* (Nunomura, 2006), but is separated from *boninense* in the following features: (1) less numerous setae on merus of perepopod 1, (2) less numerous setae on carpus of pereopod 7, (3) numerous setae on pleopods, (4) shape of propodus of male pereopod 2 and (5) less numerous flagellar segments of antennule.

	izuense	*hoestlandti*	*boninense*
Number of flagellar segments of antennule	6-7	13	8-9
Number of flagellar segments of antenna	10-11	12	14
Number of setae on maxilla (endopod)	10-11	11	17
Number of setae on maxilla (inner lobe of exopod)	12-14	10	11-13
Number of setae on maxilla (outer lobe of exopod)	10	15	12
Number of setae on palpal segments 2,3,4	1+3+6	1+2+4	4+3+4
Number of setae on outer distal area of merus of pereopod 1	1	8	4
Bifurcated setae on pereopod 1	absent	present	present
Habitat	freshwater	marine	freshwater
Distribution	Izu Peninsula	Warm-temperate Japan	Hahajima,Bonin Island

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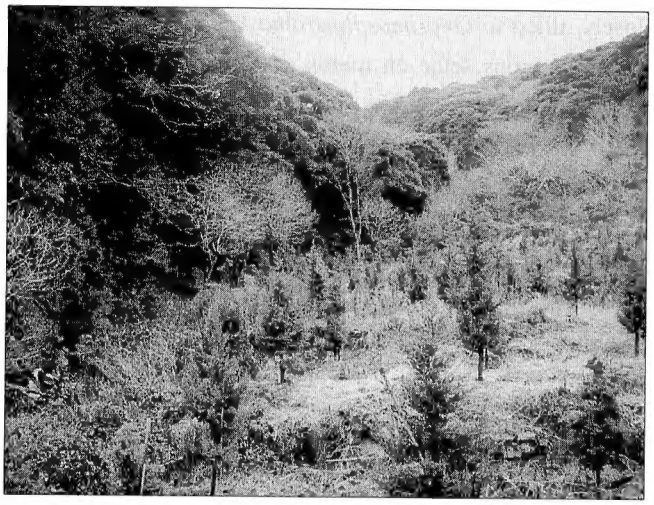

A distant view of the sampling site.
(taken by Mr. Horiguchi)

A sampling spot
(taken by Mr.Horiguchi)

Enlarged aspect of the same
(taken by Mr. Horiguchi)

Fig.3. Environment of the sampling site.